

Abstract

Semiconductor switches, such as thyristors, may be light activated by introducing the light into the switch via a groove having a sloped surface to receive the triggering light. The use of a sloped surface increases the surface path length between points of different electrical potential in the groove and, therefore, reduces the likelihood of electrical breakdown on the groove wall. In one particular embodiment, a light-activated thyristor comprises a semiconductor anode layer, an n-base layer, a p-base layer and a semiconductor cathode layer disposed parallel to a thyristor plane. A thyristor axis lies perpendicular to the thyristor plane. A groove having a light refracting side wall extends into the thyristor from the anode layer. A portion of the light refracting side wall is disposed non-parallel to the thyristor plane and to the thyristor axis, and extends in the n-drift layer.

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